prevent a solid stream from striking a conductor if a nozzle breaks or falls off.

Equipment with smaller diameter or fine mist spray nozzles do not usually present a problem. Ordinarily, a broken spray will not conduct a significant amount of current. However, spray containing fertilizer is much more conductive. Therefore, additional precautions should be taken to avoid spraying water with fertilizer into contact with transmission line conductors.

High-volume irrigation systems which use large nozzles and high pressure to sprinkle big areas are of special concern. Nozzle diameters vary from 3/4 inch to 1-15/16 inches and water pressures range from 80 to 100 psi. Thus, a solid stream discharged from one of these nozzles may reach heights of 30 to 35 feet and go as far as 200 feet. When such a system is in operation, a safe distance must be kept between it and a transmission line. If requested, BPA will gladly help you determine what a safe distance is for your equipment. Contact the nearest BPA office, listed on page 1, if you want help.

Nuisance shocks may be experienced when touching mobile pipe-type and wheel-type irrigation systems located near transmission lines. These shocks can occur when soil conditions are dry and there is a long section of irrigation pipe parallel to and within 50 feet of the transmission line centerline. Simple grounding procedures can prevent nuisance shocks on these types of systems. Contact BPA for assistance or information about your particular situation.

Central pivot circular irrigation systems installed near or under transmission lines can develop hazardous shock potentials during operation and maintenance. To eliminate these hazards:

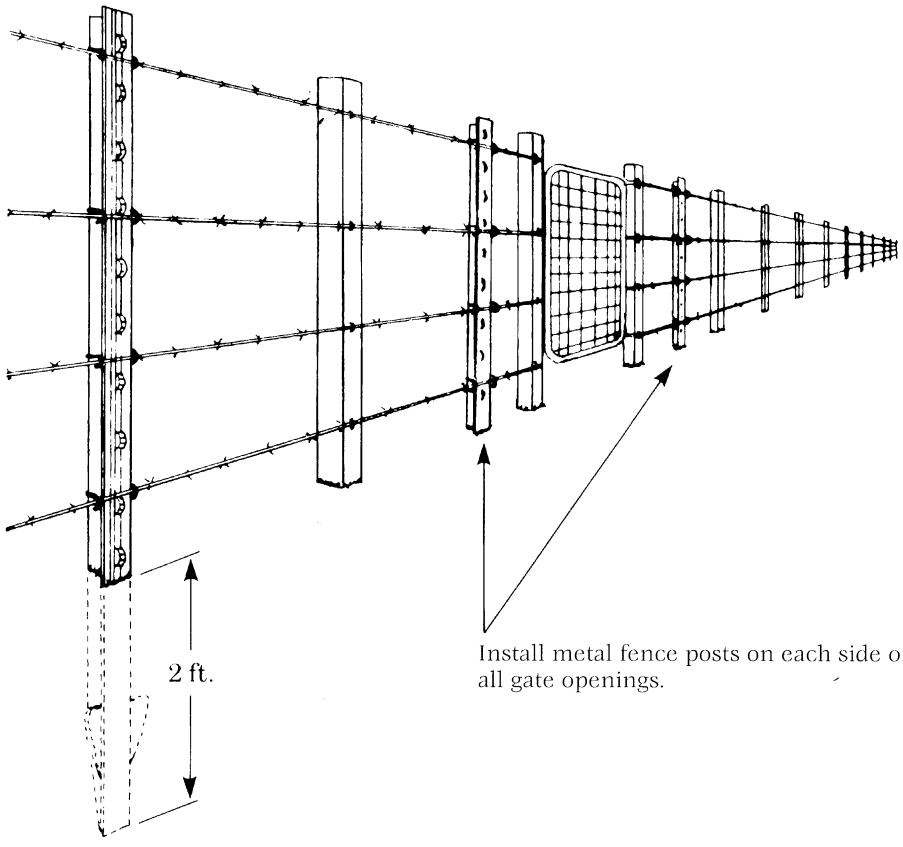
- Provide a good electrical ground for the pivot point.
- Do not touch the sprinkler pipe or its supporting structures when the system is operating under or parallel to and near a transmission line.
- Perform repairs/maintenance of the system with the sprinkler pipe perpendicular to the transmission line.

BPA has prepared a guideline for the installation and operation of irrigation systems near high-voltage transmission lines. A copy will be provided when you contact BPA for approval and assistance in safely locating, operating and maintaining irrigation systems near trans-mission lines.

Underground Pipes, Telephone Cables and Electric Cables

Underground pipes and cables are compatible with transmission lines providing installation and maintenance are properly done. However, they should be installed at an angle of 60 degrees or more to the transmission line centerline (a perpendicular crossing is best). Normally, pipes and cables should not be installed closer than 50 feet to a BPA structure or the buried grounding system. These systems are long buried wires that are sometimes attached to the structures and can run up to 300 feet along the right-of-way. Since these grounding systems are not visible above ground they must be located by BPA. Contact BPA before installing any pipe or cable which crosses a BPA transmission line right-of-way.

Proper orientation of the line with respect to underground pipes, telephone cables and electric cables is required to prevent an accident in an extreme case when a fault on the transmission line might cause electricity to arc from the conductor to the tower and go to ground. This could produce a dangerous voltage on an underground piping or cable system.



Install metal fence posts on each side of all gate openings.